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Daily News Analysis

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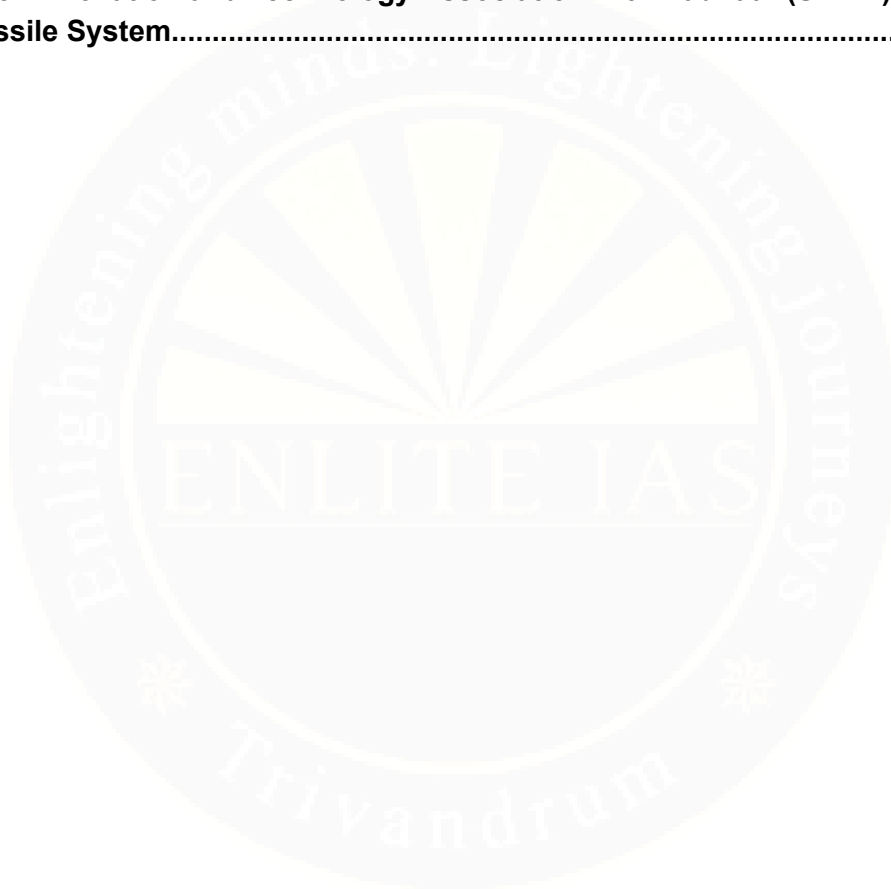
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SATURDAY, 18th OCTOBER 2025

Table of Contents

1. Advanced Medium Combat Aircraft (AMCA) Programme.....	2
2. Per Drop More Crop (PDMC) scheme.....	3
3. Non-Alignment Movement (NAM).....	5
4. Synchronous All-India Elephant Estimation (SAIEE) 2021-25.....	7
5. Paris Agreement.....	9
6. Scheme for Innovation and Technology Association with Aadhaar (SITAA).....	11
7. Akash Missile System.....	13





1. Advanced Medium Combat Aircraft (AMCA) Programme

- **Prelims** - Advanced Medium Combat Aircraft (AMCA) Programme
- **Mains** - GS 3 - Science and Technology

Why in the news?

- Russia extended its support to India's Advanced Medium Combat Aircraft (AMCA) Programme.

Advanced Medium Combat Aircraft (AMCA) Programme

- **What is it?:** AMCA is India's fifth-generation stealth multirole fighter aircraft project.
- **Developed by:** The Aeronautical Development Agency (ADA) under DRDO, with Hindustan Aeronautics Limited (HAL) as the principal production partner.
- **Aim:** Intended to replace ageing fleets like the Mirage-2000, MiG-29, and Jaguar aircraft in the IAF.
- **Features:**
 - **Stealth Design:** Radar cross-section reduction through composite materials and serpentine air-intake design.
 - **Multirole Capability:** Capable of both air-superiority and deep-strike missions.
 - **Supercruise:** Sustained supersonic flight without afterburners.
 - **Internal Weapons Bay:** Enables stealth operations.
 - **Avionics Suite:** Advanced sensor fusion, fly-by-wire controls, AESA radar,IRST, and electronic warfare suite.
 - **Networking:** Compatible with India's Integrated Air Command and Control System (IACCS).
 - Twin-engine configuration with thrust-vectoring potential.
- **Strategic Significance:**
 - **Atmanirbhar Bharat Defence Push:** Symbolises India's entry into the elite club of nations with stealth fighter tech (USA, Russia, China).
 - **Force Multiplier:** To complement Rafale and Tejas Mk-1A/2 in IAF's future fleet structure.
 - **Export Potential:** Strengthens India's aerospace manufacturing base and self-reliance.
 - **Technological Spill-over:** Boost to domestic R&D in composites, AI-aided flight systems, sensors, and engine technologies.



2. Per Drop More Crop (PDMC) scheme

- **Prelims** - Per Drop More Crop (PDMC) scheme
- **Mains** - GS 2 - Governance

Why in the news?

- The Department of Agriculture and Farmers Welfare has introduced new flexibilities within the Per Drop More Crop (PDMC) scheme to enhance water-use efficiency and increase farmers' income.

Per Drop More Crop (PDMC) scheme

- **Launch:** The Per Drop More Crop (PDMC) scheme was launched in 2015-16 as a Centrally Sponsored Scheme under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
- **Aim:** The scheme's primary focus is to improve water use efficiency at the farm level via micro-irrigation methods (i.e., drip and sprinkler irrigation).
- **Implementation:**
 - The scheme is implemented by the Department of Agriculture and Farmers Welfare (DA&FW) under the Ministry of Agriculture and Farmers Welfare.
 - From 2022-23 onwards, PDMC is being implemented under Rashtriya Krishi Vikas Yojana (RKVY).
- **Financial Assistance:**
 - 55% subsidy for small & marginal farmers and 45% subsidy for other farmers.
 - For North Eastern / Himalayan states, an additional 25% higher unit cost is considered for subsidy calculations.
 - For states with low penetration of micro irrigation, an extra 15% is added for subsidy cost calculations.
- **Support Mechanism for States:**
 - **Micro Irrigation Fund (MIF)** has been established with **NABARD** with an initial corpus of **₹5,000 crore**, from which States can avail loans to expand micro irrigation.
 - The central government offers **3% interest subvention** on these loans, funded via the PDMC scheme.



- **Coverage:**

- Total area covered under micro irrigation via PDMC (2015-16 to 2023-24): 83.06 lakh hectares.
- Central assistance released (2015-16 to date): ₹18,714.69 crore.

- **Technological Support:**

- ICAR has developed cost-effective, location-specific technologies such as-
 - ★ Rainwater harvesting & recycling
 - ★ Conjunctive use of rain, surface and groundwater resources.
 - ★ Smart / precision irrigation scheduling
 - ★ Resource conservation, drainage, and reclamation techniques.

- **Significance:**

- Evaluation studies affirm that micro irrigation is crucial for meeting national priorities such as improved on-farm water use efficiency and enhanced crop productivity.
- The scheme supports sustainable agriculture and helps in increasing farmers' incomes through resource optimization.

- **The New Flexibility Mechanisms:**

- States / UTs can now plan micro water management interventions beyond the 20% cap as per local needs.
- North Eastern / Himalayan States, and UTs of Jammu & Kashmir and Ladakh, now get more flexibility to exceed the earlier 40% limit depending on requirement.
- Micro-level water management activities allowed include:
 - ★ Construction of diggias (small water storage ponds)
 - ★ Rainwater harvesting systems
 - ★ Other local water conservation measures- at individual farmer level or community level.



3. Non-Alignment Movement (NAM)

- Prelims - Non-Alignment Movement
- Mains - GS 2 - International Relations

Why in the news?

- The 19th NAM mid-term ministerial meeting held in Uganda and India upheld the significance of Global South.

Non-Alignment Movement (NAM)

- **Formation:** Founded in 1961 at Belgrade Conference during the Cold War to avoid alignment with either US or USSR blocs.
- **Founding Countries:** India, Yugoslavia, Indonesia, Egypt and Ghana
- **Core Principles (Panchsheel):**
 - Mutual respect for sovereignty and territorial integrity
 - Mutual non-aggression
 - Non-interference in internal affairs
 - Equality and mutual benefit
 - Peaceful coexistence
- **Objectives:**
 - Safeguard political independence and sovereignty of developing nations.
 - Promote world peace, disarmament, and peaceful coexistence.
 - Oppose colonialism, imperialism, apartheid, and neo-colonialism.
 - Encourage economic cooperation and South-South solidarity.
 - Strengthen the United Nations and multilateralism.
- **Present Significance:**
 - **Voice of the Global South:** NAM remains a platform for developing nations to collectively influence global decisions.
 - **Strategic Autonomy:** India uses NAM principles to maintain independence amid great-power rivalry (e.g., US-China tensions).
 - **Climate and Development Justice:** NAM countries collectively demand fair climate finance, technology transfer, and sustainable growth opportunities.
 - **Reforming Multilateralism:** India uses NAM to advocate for UN Security Council reforms and equitable global order.



- **Global South Leadership:** India's initiatives like Voice of Global South Summit (2023) and G20 Presidency (2023) mirror NAM's ethos.
- **Peace Diplomacy:** NAM principles underpin India's calls for dialogue in conflicts such as Russia-Ukraine and Israel-Palestine.
- **Digital & Economic Equity:** NAM provides moral ground for India to push for fair rules on AI, data governance, and trade



4. Synchronous All-India Elephant Estimation (SAIEE) 2021-25

- **Prelims** - Synchronous All-India Elephant Estimation (SAIEE) 2021-25
- **Mains** - GS 3 - Environment

Why in the news?

- The Union Environment Ministry and Wildlife Institute of India (WII) released the findings of Synchronous All-India Elephant Estimation (SAIEE) 2021-25.

Synchronous All-India Elephant Estimation (SAIEE) 2021-25

- **Aim:** To estimate the population and distribution of Asian elephants (*Elephas maximus*) across India.
- **Findings:**
 - India's total elephant population: 22,446.
 - India hosts over 60% of the global population of the endangered Asian elephant.
 - Shows a decline of nearly 18% compared to 2017 estimates (not directly comparable due to new methodology).
- **Regional Distribution:**
 - Western Ghats: Home to the largest population with 11,934 elephants — more than half of India's total.
 - North Eastern Hills and Brahmaputra Flood Plains: 6,559 elephants.
 - Shivalik Hills and Gangetic Plains: 2,062 elephants.
 - Central India and Eastern Ghats: 1,891 elephants.
- **State-Wise Highlights:**
 - Karnataka remains the top state with 6,013 elephants, followed by Assam (4,159), Tamil Nadu (3,136), Kerala (2,785), Uttarakhand (1,792), and Odisha (912).
 - Lowest populations are in Bihar (13) and Mizoram (16).
 - The Brahmagiri–Nilgiri–Eastern Ghats block forms the largest sub-population, encompassing the Mysuru, Nilgiri, Wayanad, Nilambur, and Coimbatore Elephant Reserves.
- **Methodological Update:**
 - Adopted a methodology similar to the tiger estimation protocol (since 2006),



combining direct and indirect sampling techniques.

- Created a “new baseline” for monitoring; not directly comparable to earlier estimates.
- Delay in release due to expanded data collection in Northeast India for better coverage.

- **Key Trends:**

- Sharp declines observed in Jharkhand (–68%) and Odisha (–54%) due to mining, deforestation, and human disturbance.
- Significant increases in Chhattisgarh (82.6%), Madhya Pradesh, and Maharashtra, due to migration from disturbed habitats in Jharkhand and Odisha.
- Fragmentation of habitats and corridor disruption most severe in Central and Eastern India.

- **Conservation Challenges:**

- Habitat loss and degradation from mining, infrastructure expansion, and agriculture.
- Linear infrastructure (roads, railways, canals, power lines) causing elephant mortality and restricting movement.
- Human–Elephant Conflict (HEC) rising — Central India, with <10% of elephants, accounts for ~45% of elephant-related human deaths.
- Migration stress leading to crop-raiding, property damage, and safety challenges for wildlife staff.
- Corridor connectivity remains strong in Western Ghats, but is highly fragmented elsewhere.

- **Government Initiatives To Conserve:**

- Project Elephant (1992): Main conservation programme under MoEFCC.
- Elephant Reserves: 33 across India to protect key habitats and corridors.
- Gaj Yatra Campaign: Nationwide awareness and coexistence initiative.
- National Elephant Corridor Project (NECP): Proposed for long-term habitat linkage.
- Integration with Project Tiger: For ecosystem-level management and combined monitoring.



5. Paris Agreement

- Prelims - Paris Agreement
- Mains - GS 3 - Environment

Why in the news?

- More than 100 countries now experience at least 10 more “hot days” a year than a decade ago when the Paris climate accord was drawn up, scientists have said, as greenhouse gas emissions failed to be reduced.

Paris Agreement

- **Adoption:**
 - Signed in December 2015 during COP21 in Paris by 196 parties.
 - **Aims to combat climate change and transition to a low-carbon future.**
- **Goals:**
 - **Temperature Target:** Limit global warming to well below 2°C; aim for 1.5°C above pre-industrial levels.
 - **Key Focus Areas :**
 - ★ **Adaptation:** Build resilience to climate impacts.
 - ★ **Mitigation:** Reduce greenhouse gas (GHG) emissions.
 - ★ **Finance:** Mobilize resources for developing nations.
- **Features:**
 - **Nationally Determined Contributions (NDCs):** Countries set and update their emission reduction targets every five years.
 - **Global Stocktake:** Reviews collective progress every five years.
 - **Transparency Framework:** Ensures accurate reporting of emissions and actions.
 - **Climate Finance:** Developed nations pledged \$100 billion annually to support developing countries until 2025.
- **Challenges:**
 - **Funding Gaps:** Inadequate financial resources for implementation.
 - **Non-Binding Nature:** No penalties for missing targets.
 - **Inequality:** Developing nations need support to balance growth and sustainability.
- **Progress and Future Outlook:**
 - Global renewable energy use is increasing, but emissions are still rising.



→ Achieving the 1.5°C target requires enhanced cooperation, updated NDCs, and stronger financial commitments.



6. Scheme for Innovation and Technology Association with Aadhaar (SITAA)

- **Prelims** - Scheme for Innovation and Technology Association with Aadhaar (SITAA)
- **Mains** - GS 2 - Governance

Why in the news?

- The Unique Identification Authority of India (UIDAI) has recently introduced the Scheme for Innovation and Technology Association with Aadhaar (SITAA).

Scheme for Innovation and Technology Association with Aadhaar (SITAA)

- **Launch:** Launched by the Unique Identification Authority of India (UIDAI) to strengthen India's digital identity ecosystem.
- **Objective:** To safeguard Aadhaar authentication against new-age digital threats such as deepfakes, spoofing, and presentation attacks.
- **Aim:**
 - It aims to make Aadhaar more secure, inclusive, and globally benchmarked by fostering innovation through collaboration.
 - To create a collaborative innovation platform connecting Startups, Academic institutions, and Industry leaders.
- **Focus Areas:**
 - Advanced biometric technologies
 - AI-based authentication frameworks
 - Data privacy and security mechanisms
- **Challenges Addressed:**
 - **Face Liveness Detection:**
 - ★ Invites startups to develop software development kits (SDKs) for passive and active face liveness detection.
 - ★ Solutions must prevent spoofing through photos, videos, masks, morphs, deepfakes, and adversarial inputs.
 - ★ Ensures more reliable remote biometric verification.
 - **Presentation Attack Detection:**
 - ★ Open to academic and research institutions.
 - ★ Seeks AI/ML-driven systems to detect attacks such as print, replay, masks, morphs, and deepfakes.
 - **Contactless Fingerprint Authentication:**



★ Aims to build SDKs for fingerprint authentication using standard smartphone cameras or low-cost imaging devices.

- **Significance:**

- Reinforces trust and reliability in Aadhaar-based services.
- Addresses evolving cyber and biometric threats in India's digital infrastructure.
- Encourages domestic innovation and Atmanirbhar Bharat in secure identity technologies.
- Positions India as a global leader in responsible, privacy-centric digital identity management.

7. Akash Missile System

- **Prelims** - Akash Missile System
- **Mains** - GS 3 - Science and Technology

Akash Missile System



Why in the news?

- India pitches for supply of Akash missile system to Brazil as Indian Defence Minister holds talks with Brazilian Vice-President.

Akash Missile System

- **What is it?:** Akash is a medium-range, surface-to-air missile defense system.
- **Developed by:** DRDO
- **Features**
 - **Range:** Target aircraft up to 30 km away, at altitudes up to 18,000 m.
 - **Detection:** It consists of a Rohini radar that detects incoming aircraft at ranges out to 120 km and relays the information to a command post.
 - **Capacity:** It can "neutralize aerial targets like fighter jets, cruise missiles, and air-to-surface missiles" as well as ballistic missiles.



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